

WHAT IS CLAIMED IS:

- 1 1. A hydraulic brake system for a vehicle comprising:
 - 2 a hydraulic pressure generating device for pressurizing brake fluid
 - 3 supplied from a reservoir to apply a brake pressure to a wheel cylinder in response
 - 4 to operation of a brake operating member;
 - 5 an auxiliary hydraulic pressure source having an accumulator and a
 - 6 hydraulic pump, the hydraulic pump pressurizing the brake fluid supplied from the
 - 7 reservoir to a predetermined level for generating a power hydraulic pressure;
 - 8 an output hydraulic pressure detecting means for continuously detecting
 - 9 an output hydraulic pressure of the accumulator of the auxiliary hydraulic pressure
 - 10 source;
 - 11 vehicle condition detecting means for continuously detecting an operating
 - 12 condition of the vehicle;
 - 13 driving condition setting means for setting a driving condition of the
 - 14 hydraulic pump based on the operating condition of the vehicle detected by the
 - 15 vehicle condition detecting means; and
 - 16 driving control means for controlling the hydraulic pump based on the
 - 17 driving condition of the hydraulic pump set by the driving condition setting means
 - 18 and the output hydraulic pressure of the accumulator of the auxiliary hydraulic
 - 19 pressure source.

1 2. The hydraulic brake system for a vehicle in accordance with
2 Claim 1, wherein the driving condition setting means includes a vehicle stop
3 judging means for judging whether or not the vehicle is stopped, the driving
4 condition setting means setting the driving condition of the hydraulic pump so that
5 the output hydraulic pressure of the auxiliary hydraulic pressure source is smaller
6 when the stop judging means judges that the vehicle is stopped than the output
7 hydraulic pressure when the stop judging means judges that the vehicle is running.

1 3. The hydraulic brake system for a vehicle in accordance with
2 Claim 1, wherein the vehicle condition detecting means includes an operation
3 amount detecting means for detecting an operating amount of the brake operating
4 member and deceleration detecting means for detecting a deceleration of the
5 vehicle, the driving condition setting means judging occurrence of brake fade
6 based on the operating amount detected by the operation amount detecting means
7 and the deceleration detected by the deceleration detecting means, and the driving
8 condition setting means setting the driving condition of the hydraulic pump so that
9 the output hydraulic pressure of the auxiliary hydraulic pressure source is larger
10 when the driving condition setting means judges the occurrence of brake fade than
11 the output hydraulic pressure under normal braking operation.

1 4. The hydraulic brake system for a vehicle in accordance with
2 Claim 1, wherein the hydraulic pressure generating device includes a master

3 cylinder and a hydraulic booster assisting operation of the master cylinder by
4 using the power hydraulic pressure generated by the auxiliary hydraulic pressure
5 source.

1 5. The hydraulic brake system for a vehicle in accordance with
2 Claim 1, wherein the output hydraulic pressure detecting means includes a first
3 pressure sensor for detecting the hydraulic pressure of the auxiliary hydraulic
4 pressure source.

1 6. The hydraulic brake system for a vehicle in accordance with
2 Claim 1, wherein the vehicle condition detecting means includes at least one of a
3 wheel sensor detecting a wheel speed of the vehicle, a stroke sensor detecting a
4 stroke amount of the brake operating member, a vehicle height sensor detecting a
5 height of the vehicle, and a second pressure sensor detecting the brake pressure
6 generated by the hydraulic pressure generating device.

1 7. The hydraulic brake system for a vehicle in accordance with
2 Claim 2, wherein the vehicle condition detecting means includes an operation
3 amount detecting means for detecting an operating amount of the brake operating
4 member and deceleration detecting means for detecting a deceleration of the
5 vehicle, the driving condition setting means judging an occurrence of brake fade
6 based on the operating amount detected by the brake operation amount detecting

7 means and the deceleration detected by the deceleration detecting means, and the
8 driving condition setting means setting the driving condition of the hydraulic pump
9 so that the output hydraulic pressure of the auxiliary hydraulic pressure source is
10 larger when the driving condition setting means judges the occurrence of brake
11 fade than the output hydraulic pressure under normal braking operation.

1 8. The hydraulic brake system for a vehicle in accordance with Claim
2 1, wherein the auxiliary hydraulic pressure source further includes an electric
3 motor for driving the hydraulic pump and the accumulator is connected at an
4 output side of the hydraulic pump.

1 9. A hydraulic brake system for a vehicle comprising:
2 a hydraulic pressure generating device for pressurizing brake fluid
3 supplied from a reservoir to apply a brake pressure to a wheel cylinder in response
4 to operation of a brake operating member;
5 an auxiliary hydraulic pressure source having an accumulator and a
6 hydraulic pump, the hydraulic pump pressurizing the brake fluid supplied from the
7 reservoir to a predetermined level for generating a power hydraulic pressure;
8 an output hydraulic pressure detecting means for continuously detecting
9 an output hydraulic pressure of the accumulator of the auxiliary hydraulic pressure
10 source;

11 vehicle condition detecting means for continuously detecting at least one
12 of a plurality of operating conditions of the vehicle, including whether the vehicle
13 is in a stopped condition or a running condition, whether a vehicle load is greater
14 than or less than a predetermined value, the absence or presence of an automatic
15 braking condition, the absence or presence of a sudden breaking condition, and the
16 absence or presence of a brake fade occurrence;

17 driving condition setting means which sets a first driving condition of the
18 hydraulic pump when the vehicle condition detecting means detects at least one of
19 the stopped condition of the vehicle, the vehicle load being less than the
20 predetermined value, the absence of the automatic braking condition, the absence
21 of the sudden breaking condition and the absence of brake fade occurrence, and
22 sets a second driving condition higher than the first driving condition when the
23 vehicle condition detecting means detects at least one of the running condition of
24 the vehicle, the vehicle load being greater than the predetermined value, the
25 presence of the automatic braking condition, the presence of the sudden breaking
26 condition and the presence of brake fade occurrence; and

27 driving control means for controlling the hydraulic pump based on either
28 the first or second driving condition set by the driving condition setting means and
29 the output hydraulic pressure of the accumulator of the auxiliary hydraulic
30 pressure source.

1 10. The hydraulic brake system for a vehicle in accordance with
2 Claim 9, wherein the vehicle condition detecting means includes an operation
3 amount detecting means for detecting an operating amount of the brake operating
4 member and deceleration detecting means for detecting a deceleration of the
5 vehicle, the driving condition setting means judging the presence brake fade
6 occurrence based on the operating amount detected by the operation amount
7 detecting means and the deceleration detected by the deceleration detecting means.

1 11. The hydraulic brake system for a vehicle in accordance with
2 Claim 9, wherein the hydraulic pressure generating device includes a master
3 cylinder and a hydraulic booster assisting operation of the master cylinder by
4 using the power hydraulic pressure generated by the auxiliary hydraulic pressure
5 source.

1 12. The hydraulic brake system for a vehicle in accordance with
2 Claim 9, wherein the output hydraulic pressure detecting means includes a first
3 pressure sensor for detecting the hydraulic pressure of the auxiliary hydraulic
4 pressure source.

1 13. The hydraulic brake system for a vehicle in accordance with
2 Claim 9, wherein the vehicle condition detecting means includes at least one of a
3 wheel sensor detecting a wheel speed of the vehicle, a stroke sensor detecting a

4 stroke amount of the brake operating member, a vehicle height sensor detecting a
5 height of the vehicle, and a second pressure sensor detecting the brake pressure
6 generated by the hydraulic pressure generating device.

1 14. The hydraulic brake system for a vehicle in accordance with Claim
2 9, wherein the auxiliary hydraulic pressure source further includes an electric
3 motor for driving the hydraulic pump and the accumulator is connected at an
4 output side of the hydraulic pump.